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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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THE APPRAISAL OF CONTENT IS TENTATIVE.
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CONFIDENTIAL

REPORT NO.

COUNTRY Czechoslovakia

DATE DISTR. 26 Jan. 1955

SUBJECT Special Generator Production Program at MEZ Vsetin

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THIS IS UNEVALUATED INFORMATION

1. By the middle of 1951, MEZ in Vsetin (N 49-20, E 18-00) had received an inquiry, probably from the Ministry of Heavy Machinery Construction, about the possibility of producing 25 turbo-dynamos marked PG 33 (see paragraph 4 for detailed description). The inquiry was accompanied by design blueprints and detailed production specifications for each part. The specifications were very complete. For example, not only the type of insulating lacquer, its composition and purpose were given, but also detailed specifications for testing lacquers during the production process were stipulated, including the position and rank of factory personnel who were to perform the testing. Source had never before seen such detailed specifications. The entire text was written in the Russian language and the specifications were contained in two cardboard-bound volumes.

2. The fact that the production specifications were so detailed led source to believe that they were prepared by someone who definitely had outstanding knowledge of technology and that great importance was attached to the project. Source did not believe that these specifications were of Soviet origin but, rather, that they might have been a copy and translation of an American original or, since all measurements were given in the metric system, perhaps a German original.

3. The dynamos were to be manufactured according to Soviet Maritime Registry standards. This was understood from the specifications and was also stipulated in the text. MEZ stated they were willing to accept the order and "to produce the machines in accordance with specifications received". This phraseology was suggested by source. Actually, the inquiry asked that the plant guaranty the correct operation of the dynamos. Source, therefore, suggested this weasel wording because he did not believe the plant should be expected to guaranty the correct operation of machinery which had not been designed in the plant. The offer made by MEZ Vsetin was accepted and the order was placed with the plant. Source did not know who placed the order or when it was actually placed.

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4. The dynamos were DC generators, continuous output, 300 kw , 1,500 rpm, 230 v, 1,300 amp., and had shunt excitation with slight series excitation. The generators were completely enclosed; an inlet and an outlet for air were installed on the top.

   a. Armature: The diameter was 560 mm. The length was 200 mm. There were 51 slots in the armature; each slot was 14.2 x 34/40 mm. in size. Each slot contained six copper-wire conductors. Each conductor consisted of two parts. Each part was 3.53 x 6.9 mm. in size and was insulated. The insulation was 0.4 mm. thick. The two parts of each conductor were connected in parallel in order to decrease copper eddy current losses. These dimensions for conductors were very unusual for Central Europe. The armature had an axial air-ventilating ducting system; there were no radial air ducts. The winding of the armature was equipped with equalizers.

   b. Commutator: The diameter was approximately 300 mm. There were six brush sets, each set containing ten brushes, 30 x 20 mm. in size. Source could not remember the height of the brushes.

   c. Stator: There were six main poles and six auxiliary poles. The main pole air gap was four mm. Width of the main pole at the armature was 60%. The tips of the main poles were not bent back from the armature as is the usual case. The frame consisted of two parts.

   d. Each generator was equipped with an excitation regulator (rheostat). The regulators were produced by MEZ in Postrelmov (N 49-55, E 16-55).

   e. Each generator was to be driven by a steam turbine. The turbines developed 6,000 to 8,000 rpm and were produced by the V.I. Lenin Works, National Enterprise, in Pilsen-Doudlevce.

5. A generator, similar in design and size to those described above, was used for testing purposes by MEZ Development in Brno. It was a Brown Boveri product and was probably manufactured during World War II. Source was told at MEZ Development that the generator was originally to be used in a submarine.

6. The entire production program of the PG 33 generators was referred to by the cover name "Jitrenka". The original inquiry had been placed under this name. The entire program was handled in a more confidential manner than any other program in the plant. There was no doubt among plant employees that the generators were for the Soviets but it was impossible to learn their exact purpose and destination.

7. One Kulikov (fnu), a Soviet citizen, came to MEZ Vsetin frequently, after the beginning of 1952, to inspect the production of the PG 33 generators. He also inspected the production of turbines in the V.I. Lenin Works, National Enterprise, as well as the production of regulators at MEZ Postrelmov. He was also in regular contact with the Ministry of Heavy Machinery Construction. He did not check on any other production in MEZ Vsetin which was destined for the Soviets. Kulikov was said to have been a major in the Soviet Army during the war. Source believed that Kulikov was only an office administrator and had had no practical experience in production. Kulikov was recalled to Moscow in the summer of 1954 and was replaced by another Soviet whose name, source believes, was Sukhomlynov (fnu). Sukhomlynov gave the impression of having had experience in production.

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8. The production of regulators at MEZ Postrelmov was also handled under a cover name, but source did not know what it was. Similarly, the production of turbines in the V.I. Lenin Works, National Enterprise, had a cover name, but source could not remember it.

9. Two generators were manufactured as prototypes and tested at MEZ Vsetin. It was discovered that neither the dimensions of the parts nor the quality of the material met the required specifications, e.g., the armature was one centimeter longer than it should have been and the magnetic values differed from those specified. One of the main causes of the deviation of magnetic values was the fact that the Czechoslovak lamination material was of better quality than the Soviet material and, therefore, although having the same electric losses, the Czechoslovak material had higher magnetic values. The prototypes were equipped with Steyr bearings. Kulikov demanded that they be replaced with bearings of Soviet make, although the MEZ technicians believed that the Steyr bearings were better than the Soviet-made bearings. After the Soviet bearings were installed in the machines, the magnetic values deviated from the required specifications even more than before. The specifications called for lacquer-insulated armature sheets; the MEZ plant used phosphatized sheets. Kulikov reproached MEZ for this in spite of the fact that he had originally agreed to it. Kulikov also objected to many other minor deviations from the specifications. It was rumored in the plant, during the second half of 1953, that the production of PG 33 generators would be transferred from Vsetin to the V.I. Lenin Works, Electric Factory, in Pilsen-Doudlevce, or perhaps to another country.

10. Due to the poor performance of these generators, MEZ Vsetin, after a period of several months, manufactured two other generators as prototypes. They were sent to the V.I. Lenin Works, Electric Factory, in the fall of 1953 where MEZ mechanics were to conduct 1,000 hours of testing. Source believed that such testing was not originally stipulated but had been later requested by Kulikov. After being in operation for three or four hours, the commutators heated and started to show excessive wear. Close scrutiny revealed that the brushes bore traces of copper. The brushes were products of the Lessing firm in Nuremberg, type EL 13. They were replaced with type EG 40 A brushes, products of the Le Carbon firm. When equipped with the latter firm's brushes, the generators operated satisfactorily and were returned to MEZ Vsetin after a period of two months.

11. In the early part of 1954, a PG 33 of Soviet manufacture arrived at the V.I. Lenin Works in Pilsen-Doudlevce for testing. MEZ Vsetin personnel assisted in the testing. The Soviet generator was inferior to the MEZ prototypes. It also developed deviations from specified magnetic values. Source was not certain why the Soviets sent their generator to Pilsen-Doudlevce but he believed that this was arranged by Ing. Miroslav Smok, an executive of the Czechoslovak Ministry of Machinery Construction, and was a maneuver intended to embarrass Kulikov. Smok was in Moscow in December 1953 where he discussed, among other things, the PG 33 generators. The testing of the Czechoslovak prototypes was considered completed in August 1954 and MEZ Vsetin planned to begin production of the entire series of 25 units in the very near future. Source did not know the date specified for delivery. He only knew that it was a short period of time. Considering the general conditions at MEZ Vsetin, source estimates that the plant might begin the delivery of PG 33 generators in the autumn of 1955.

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